

Reconsideration of the above-identified application is respectfully requested in view of the following amendments and remarks.

REMARKS

Status of the Claims

Claims 1-8 are pending and have been rejected by the Examiner.

Claims 1 and 8 have been amended. Support for the amendments to claims 1 and 8 can be found, *inter alia*, in the specification at page 4, lines 11-12, and page 5, lines 2-5.

No new matter has been added.

Drawing

The Examiner has objected to the drawing submitted on August 14, 2006. According to the Examiner, "the sheet of figures should be labeled 'New Sheet' and Figures 1, 2A, and 2B shown on this sheet should be labeled 9, 10A, and 10B, respectively, since it appears that these are additional figures and not replacement figures." See Office Action at page 2, section 1.

Applicant submits herewith a new replacement drawing. The replacement drawing is labeled "New Sheet," as suggested by the Examiner. However, Applicant respectfully believes that the New Sheet is properly labeled as Figures 1, 2A, and 2B. Applicant notes that original Figures 1-8 were cancelled with the response filed August 10, 2006. As the Examiner points out, when figures are cancelled, "the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief

description of the several views of the drawings for consistency.” See Office Action at page 2, section 1 (emphasis added).

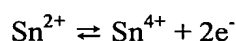
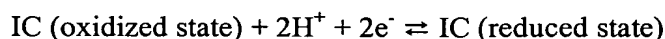
Rejections under 35 U.S.C. § 103

The Examiner has rejected claims 1-8 under 35 U.S.C. §103(a) as being unpatentable over Hu et al. (U.S. Pat. No. 3,768,976) in view of Patel (U.S. Pat. No. 5,053,339).

According to the Examiner, “Hu et al. discloses a timing device (10) for visually determining the passage of a preselected period of time comprising: a redox indicator (17, 19) deposited within a matrix, said matrix being exposable to air such that over a period of time during exposure to air, the redox indicator changes color and thereby indicates the passage of a predetermined period of time.” See Office Action at page 3, section 3. Applicant traverses this rejection.

In the interest of expediting prosecution, Applicant has herein amended claim 1. As amended, claim 1 recites, “[a] timing device for visually determining the passage of a preselected period of time comprising: a redox couple containing a redox indicator in combination with a reactable metal ion, said redox couple deposited within a matrix, said matrix being exposable to air such that over a period of time during exposure to air, the redox indicator changes color and thereby indicates the passage of a predetermined period of time.” See claim 1, as currently amended (emphasis added). Applicant notes the only other independent claim currently pending, claim 8, has likewise been amended. As amended, it is clear that the presently claimed invention is directed to a timing device comprising a redox couple containing a redox indicator coupled with a reactable metal ion, which is deposited within a matrix.

According to the present invention, “[a] redox couple may be formed between a redox indicator and another material, such as a metal ion.” See Applicant’s specification at page 4, lines 11-12. The redox couple of the present invention results in an initial redox equilibrium between the redox indicator and a metal ion. For example, in one embodiment, the timing device of the present invention has an equilibrium set up in the film where an indigo carmine indicator has been reduced by the tin ion:



See Applicant’s specification at page 4, lines 17-21. This redox equilibrium is set up in a film matrix (see Applicant’s specification at page 5, lines 2-5), and then exposed to another oxidizing agent, e.g., air, allowing the redox couple to re-oxidize resulting in a color change. See Applicant’s specification at page 5, lines 16-18. The timing device of the present invention is easier to apply to a wide array of uses, provides for improved color change control and can accommodate a wide range of product self-lives. According to Applicant’s specification, “[t]he rate at which the color change occurs depends on factors such as the ratio of redox indicator to oxidizable metal, the particular metal salt used, film thickness, and temperature.” See Applicant’s specification at page 5, lines 18-20.

Hu et al. is directed to a system which is composed of a dye solution contained within a film package, which conceals a message. According to Hu et al., oxygen migrates through the film package and reacts with the dye solution, turning the solution colorless, revealing the message. See Hu et al. in the Abstract. The film of the package regulates the flow of oxygen into the package, which causes the dye solution to turn colorless and reveal the message. See Hu et al. in the Abstract. In

contrast, Applicant's invention comprises a redox indicator coupled with a reactable metal ion, which is incorporated into a film. The redox couple is distributed throughout the film, so that the film changes color. Applicant respectfully points out that Hu et al. does not disclose a redox couple containing a redox indicator coupled with a reactable metal ion, which is deposited within a matrix, as presently claimed.

The Examiner has cited Patel to overcome the deficiencies of Hu et al. In particular, according to the Examiner, "Patel discloses a timing device comprising a redox indicator within a matrix and in combination with a reactable metal ion." See Office Action at page 4, second paragraph. Applicant respectfully disagrees with this contention. Patel describes a two-part system where two films must be placed in contact so that a component in the first film can react with a component in the second film. According to Patel, "[t]his is done by employing an activator-indicator system in which the activator and indicator are separately contained in matrix layers, ..., which are sandwiched together by means of at least one pressure sensitive adhesive and which allow the migration of the activator through the barrier and/or indicator matrix. The diffused activator reacts with the indicator to produce a color change." See Patel at col. 4, lines 3-11 (emphasis added). Thus, the activator and indicator of Patel are contained in separate matrix layers and the activator must diffuse out of the activator layer and migrate into the indicator layer to react with the indicator, thereby producing a color change. Such an arrangement would be more complicated to use and may provide variation in the time required for color change. In contrast, as previously pointed out hereinabove, in the present invention, only one film is required, and the components in that film react with ambient air to produce a color change.

Applicant respectfully asserts that the combination of Hu et al. and Patel does not teach or suggest a redox couple containing a redox indicator coupled with a reactable metal ion, which is deposited within a matrix, as presently claimed.

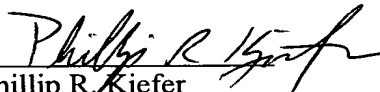
Furthermore, it is Applicant's position that one of skill in the art looking to formulate an improved timing device would not be capable of arriving at the presently claimed invention in light of Hu et al. and Patel. Again, the presently claimed invention comprises a single film layer containing a redox couple, which can be oxidized with ambient air to produce a color change. The timing device is easier to apply to a wide array of uses, provides for improved color change control and can accommodate a wide range of product self lives.

As such, Applicant respectfully asserts that the combination of Hu et al. with Patel does not teach or suggest a redox couple containing a redox indicator coupled with a reactable metal ion, which is deposited within a matrix, as presently claimed, and thus, does not and cannot render the presently claimed invention obvious.

Reconsideration and withdrawal of this rejection are respectfully requested.

Respectfully submitted,

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Date


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